

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Attorney Docket No. BUR919990222US2

In re application of:

ADLER

Serial No.: **UNASSIGNED**

Filed: **HEREWITH**

For: **CAPACITOR HAVING SIDEWALL
SPACER PROTECTING THE
DIELECTRIC LAYER AND METHOD
OF FABRICATING THE SAME**

§
§
§
§
§
§
§
§
§
§

Examiner: **UNKNOWN**

Art Unit: **UNKNOWN**

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

This Preliminary Amendment is submitted in furtherance of the prosecution of the accompanying divisional application.

Please amend the above-identified application as indicated below.

CERTIFICATE OF MAILING

37 CFR 1.8(A)

I hereby certify that this correspondence is being deposited with the U.S. Postal Service as First Class Mail in an envelope addressed to Assistant Commissioner of Patents and Trademarks, Washington, D. C. 20231.

Date

Signature

Dana Farris
Dana Farris

SPECIFICATION

Please amend page 1, paragraph 1 as follows:

This application is a divisional of U.S. Application Serial No. 09/616,951. This application is also related to Serial No. 09/298,122, "Metal-Insulator-Metal Capacitor for Copper Damascene Process and Method of Forming the Same," filed April 23, 1999, and incorporated herein by reference.

CLAIMS

1. (canceled)
2. (canceled)
3. (canceled)
4. (canceled)
5. (canceled)
6. (canceled)
7. (canceled)
8. (canceled)

9. (amended) A method of fabricating a capacitor structure, said method comprising:
 - forming a bottom plate;
 - forming a dielectric layer overlaying the bottom plate;
 - forming over the dielectric layer a top plate having a smaller area than said bottom plate, said top plate having a perimeter;
 - forming at least one insulating sidewall spacer placed against said perimeter of said top plate and overlaying a portion of said dielectric layer.

1 10. (unchanged) The method of Claim 9, and further comprising:
2 prior to forming said at least one insulating sidewall spacer, etching said top plate to expose said
3 dielectric at said perimeter of said top plate.

1 11. (unchanged) The method of Claim 9, wherein:
2 said method further comprises forming a conductor embedded in a substrate; and
3 forming the bottom plate comprises forming the bottom plate overlaying the conductor.

1 12. (unchanged) The method of Claim 11, wherein forming a conductor comprises forming a copper
2 damascene structure.

1 13. (unchanged) The method of Claim 11, wherein forming said bottom plate comprises forming a
2 conductive barrier layer in contact with said conductor.

1 14. (unchanged) The method of Claim 9, wherein each of said steps of forming a bottom plate and forming
2 a top plate comprises forming a metal plate.

1 15. (unchanged) The method of Claim 9, wherein forming the dielectric layer comprises forming a silicon
2 dioxide layer.

1 16. (unchanged) The method of Claim 9, and further comprising forming an insulating cap overlaying said
2 top plate.

1 17. (amended) The method of Claim 16, wherein said insulating cap has a perimeter coextensive with said
2 top plate, and wherein forming said at least one insulating sidewall spacer comprising forming said at least
3 one insulating sidewall spacer against said perimeter of said insulating cap.

1 18. (newly entered) The method of Claim 9, wherein forming at least one insulating sidewall spacer
2 comprises forming at least one insulating sidewall spacer on a top surface of the dielectric layer.

1 19. (newly entered) The method of Claim 18, wherein forming at least one insulating sidewall spacer
2 comprises forming at least one insulating sidewall spacer overlaying a portion of said bottom plate.

1 20. (newly entered) The method of Claim 9, and further comprising:
2 forming a copper damascene conductor in a substrate underlying said bottom plate.

REMARKS

This Preliminary Amendment is submitted in furtherance of the prosecution of the accompanying divisional application, which is directed to the non-elected claims subjected to a restriction requirement in U.S. Patent Application Serial No. 09/616,951.

The present Preliminary Amendment proposes amendments to the specification to supply the serial numbers of the parent application and the cross-referenced related application. The proposed amendments do not contain any new matter. In addition, the present Preliminary Amendment cancels Claims 1-8, amends Claims 9 and 17, and enters Claims 18-20. Thus, Claims 9-20 are now pending.

No additional fee is believed to be required; however, in the event any additional fees are required, please charge IBM Corporation Deposit Account No. **09-0456**.

Respectfully submitted,



Brian F. Russell

Reg. No. 40,796

BRACEWELL & PATTERSON, L.L.P.

Suite 350 Lakewood on the Park

7600B North Capital of Texas Highway

Austin, Texas 78731

(512) 343-6116

ATTORNEY FOR APPLICANTS

REDACTED SPECIFICATION

Please amend page 1, paragraph 1 as follows:

This application is a divisional of U.S. Application Serial No. 09/616,951. This application is also
related to Serial No. 09/298,122 [___/____ (Docket No. BU9-98-155)], “Metal-Insulator-Metal
Capacitor for Copper Damascene Process and Method of Forming the Same,” filed April 23, 1999, and
incorporated herein by reference.

REDACTED CLAIMS

1. (canceled)

2. (canceled)

3. (canceled)

4. (canceled)

5. (canceled)

6. (canceled)

7. (canceled)

8. (canceled)

9. (amended) A method of fabricating a capacitor structure, said method comprising:

forming a bottom plate;

forming a dielectric layer overlaying the bottom plate;

forming [a top plate] over the dielectric layer a top plate having a smaller area than said bottom
plate, said top plate having a perimeter;

forming at least one insulating sidewall spacer placed against said perimeter of said top plate and
overlaying a portion of said dielectric layer.

1 10. (unchanged) The method of Claim 9, and further comprising:

2 prior to forming said at least one insulating sidewall spacer, etching said top plate to expose said
3 dielectric at said perimeter of said top plate.

1 11. (unchanged) The method of Claim 9, wherein:

2 said method further comprises forming a conductor embedded in a substrate; and
3 forming the bottom plate comprises forming the bottom plate overlaying the conductor.

1 12. (unchanged) The method of Claim 11, wherein forming a conductor comprises forming a copper
2 damascene structure.

1 13. (unchanged) The method of Claim 11, wherein forming said bottom plate comprises forming a
2 conductive barrier layer in contact with said conductor.

1 14. (unchanged) The method of Claim 9, wherein each of said steps of forming a bottom plate and forming
2 a top plate comprises forming a metal plate.

1 15. (unchanged) The method of Claim 9, wherein forming the dielectric layer comprises forming a silicon
2 dioxide layer.

1 16. (unchanged) The method of Claim 9, and further comprising forming an insulating cap overlaying said
2 top plate.

1 17. (amended) The method of Claim 16, wherein said insulating cap has a [corresponding] perimeter [to]
2 coextensive with said top plate, and wherein forming said at least one insulating sidewall spacer comprising
3 forming said at least one insulating sidewall spacer against said perimeter of said insulating cap.

1 18. (newly entered) The method of Claim 9, wherein forming at least one insulating sidewall spacer
2 comprises forming at least one insulating sidewall spacer on a top surface of the dielectric layer.

1 19. (newly entered) The method of Claim 18, wherein forming at least one insulating sidewall spacer
2 comprises forming at least one insulating sidewall spacer overlaying a portion of said bottom plate.

1 20. (newly entered) The method of Claim 9, and further comprising:
2 forming a copper damascene conductor in a substrate underlying said bottom plate.